

### **ABSTRACT OF THE DISCLOSURE**

A friction agitation welding apparatus comprises a threaded shaft (46) fixedly connected to a motor shaft, a slide housing (48) in engagement with the threaded shaft (46) for vertical movement, a first drive shaft (58) supported for rotation by but coupled fixedly in axial movement to the slide housing (48) and equipped with a friction agitation welding tool (4), and a second drive shaft (64) fixedly connected to a motor shaft and telescopically supported by but coupled fixedly in relative rotation to the first drive shaft (58). When the threaded shaft (46) is rotated, the slide housing (48), and hence the first drive shaft (58), moves to advance the friction agitation welding tool (4) to urge superposed workpieces to be joined. When the second drive shaft (64) is rotated, the first drive shaft (58), and hence the friction agitation welding tool (4), rotates even while the friction agitation welding tool (4) urges the superposed workpieces.